

# Fighting Over a Red Herring:

## The Role of Economics in Recreational- Commercial Allocation Disputes

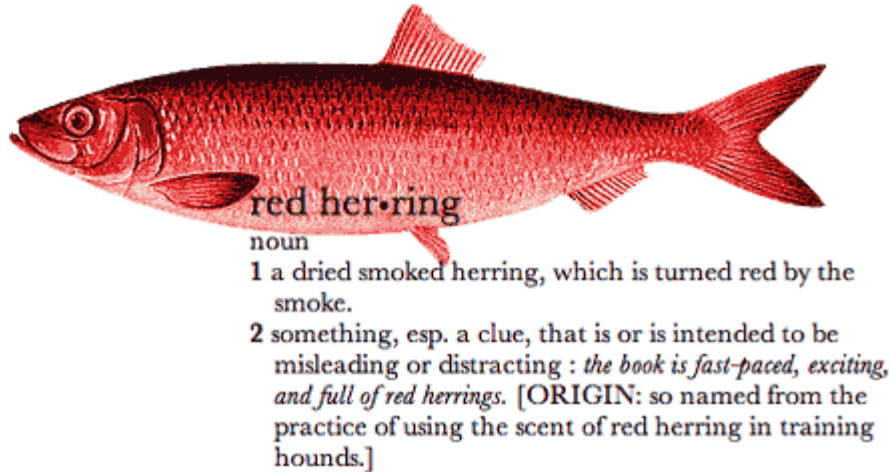
Dr. Joshua Abbott

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Considerations of Allocation Decisions

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# The point



- Much economic work has focused on cross-sector allocation issues
  - Treats management institutions as fixed
  - Heavy reliance on the *equimarginal principle* ( $MB=MC$ )

My arguments:

1. *Much reallocation analysis is flawed in its conception of efficiency - on both static and dynamic grounds.*
2. *Inter-sector allocation issues are rarely a first-order concern. Instead they are often a “red herring”.*
3. *Policy (and economics) would be better served if we focused on informing managers on how to achieve accountability, efficiency and fairness within AND between sectors.*

# What are the evaluative criteria?

1. Accountability
2. Efficiency
3. Fairness
  - I will say little (directly) about this, but NOT because it isn't important!

# Accountability

- For what?
  - Fishing mortality
- A challenge in most marine recreational fisheries due to
  - Large and diffuse populations of anglers
  - Poor control of total fishing mortality by bag and size limits
  - Limited (and lagged) catch monitoring
  - Difficulty in estimating mortality from discarded catch

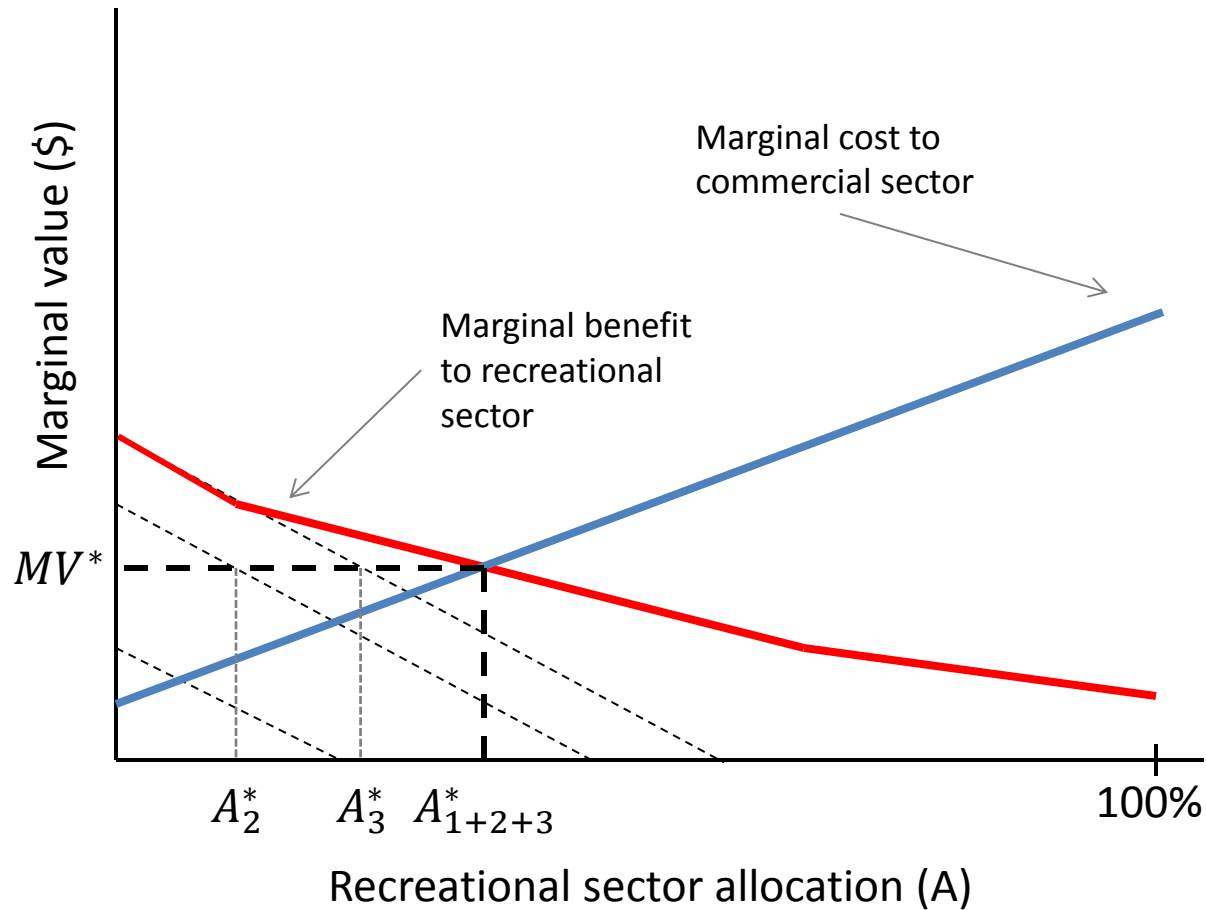
# Efficiency

- Maximization of net benefits
  - Sum of consumer and producer surplus
  - May include non-market benefits as well
- Efficiency can be parsed into two components
  1. Intra-sector: Maximize sector-level net benefits conditional on the sector's allocation of fishing mortality
  2. Inter-sector: Maximize total net benefits through allocation of fishing mortality between sectors
    - Conditional on total allowable fishing mortality
      - Could also think about the efficient level of total fishing mortality (MEY)

# Efficiency, continued

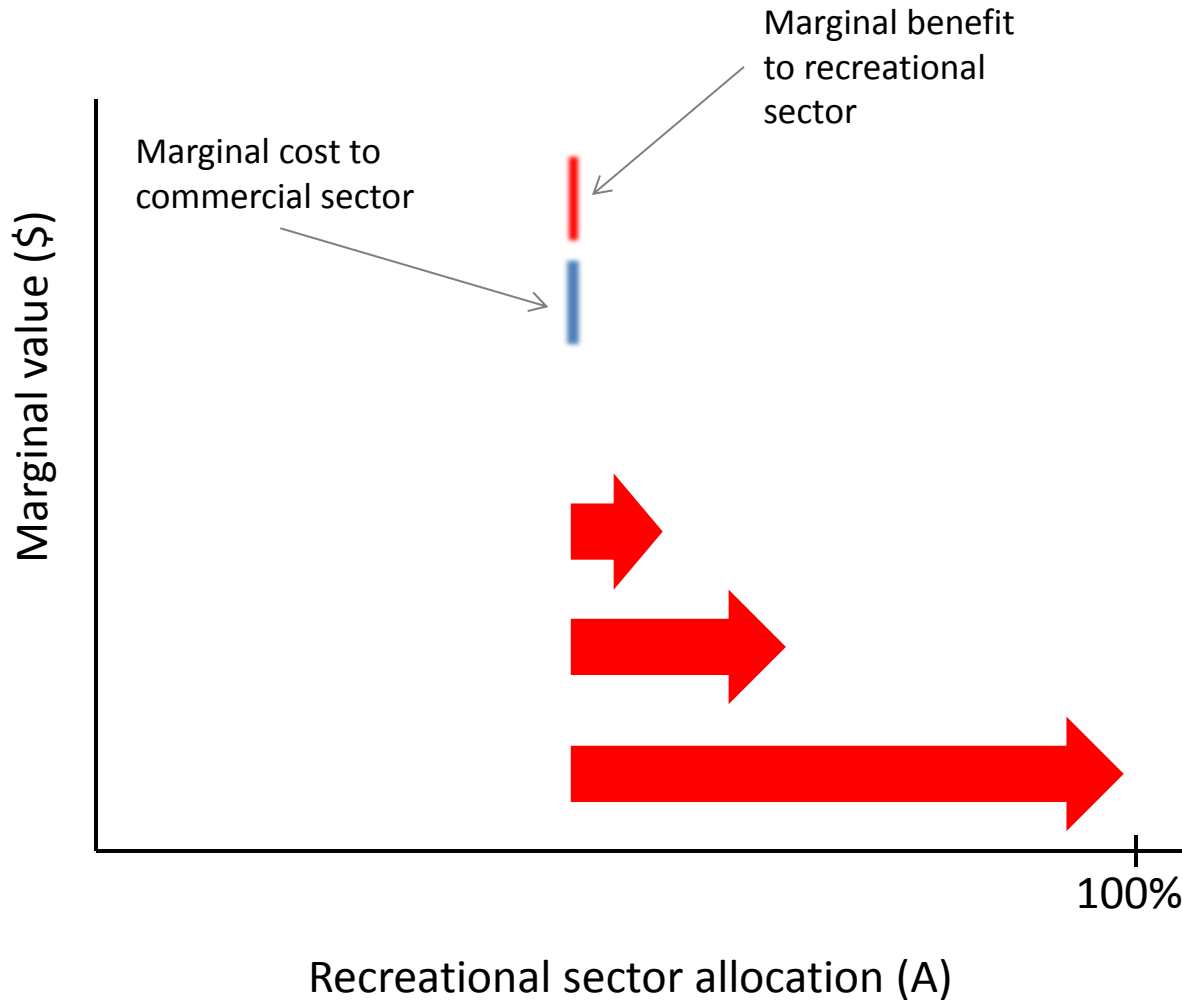
- Whether for recreational or commercial, economists strive to estimate input demand functions for catch/landings/mortality
  - Horizontally-summed across fishermen or anglers
- Commercial
  - Duality approaches using price & landings data
  - ITQ lease price data
- Recreational
  - Recreation demand models (both RP and SP)

# The equimarginal principle (ideal)





# The equimarginal principle (actual?)



?

# Is inter-sector efficiency analysis (as currently conducted) a red herring?

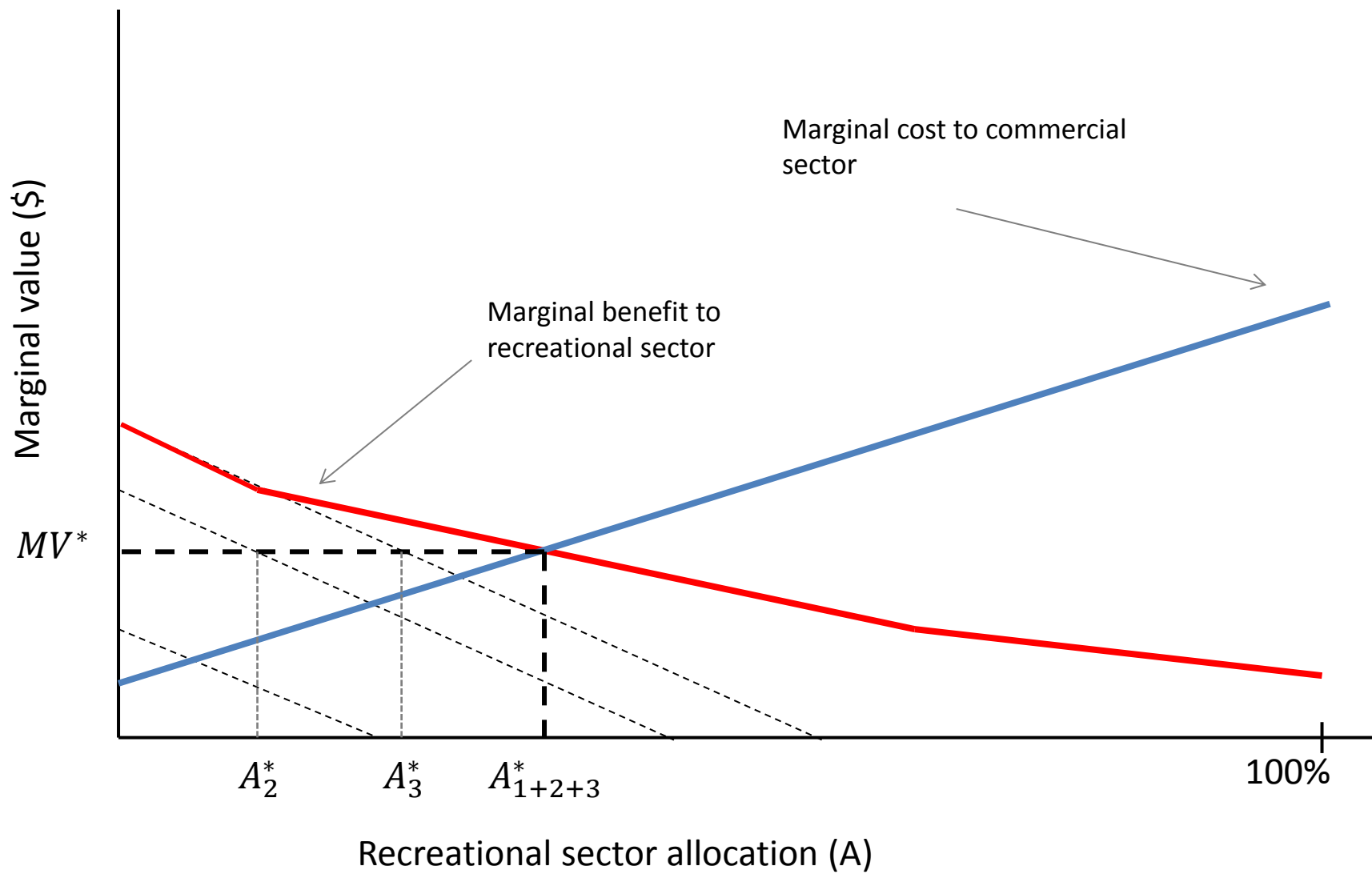


- I argue “yes” for two reasons
  1. Static argument
    - Strongly influenced by Holzer and McConnell (2014)
  2. Dynamic/institutional arguments

*None* of my arguments are about the integrity of the theory or econometrics underlying current allocation analyses!

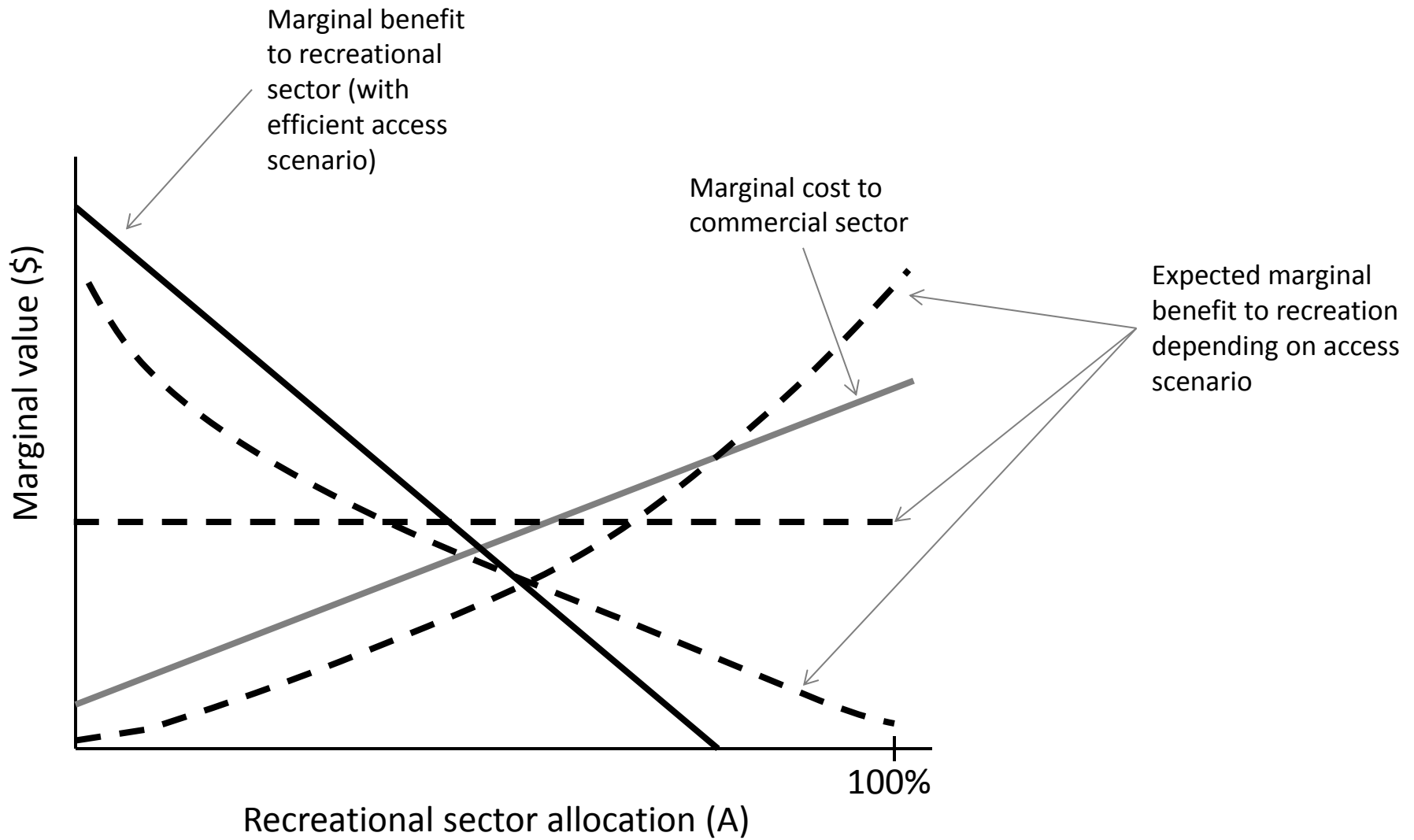
# Red herring: the static argument

- The typical downward sloping “sector” demand curve conveys information about the valuation and the allocation of fishing mortality within the sector
- The logic of “horizontal summation” implies that fishing mortality is allocated in priority of highest marginal benefit
- In other words, the “sector demand” embeds within it a “market-like” story of how fishing mortality is rationed across users



# The problem

- Management institutions act as a selection mechanism across the distribution of marginal values
  - The result: an *expected* marginal valuation function
- Real world management institutions rarely ration fishing mortality in rank order of its marginal valuation within each sector
  - Particularly in (regulated) open access recreational fisheries
- The fishermen holding the “marginal valuation” may have a low probability of getting the “marginal fish”



# The static argument: summary

- Non-price methods of rationing select on dimensions of heterogeneity aside from WTP
  - How tightly correlated are these heterogeneities with WTP?
- We must understand the mechanisms for allocation *within* sectors to say anything about the efficiency of allocations *between* sectors
- Even point comparisons of marginal values across sectors can be misleading.

# Dynamic/institutional argument 1

- Most reallocation analyses compare *current, static* values
  - Analogous to lease values
- Changes in biological, economic and socio-demographic variables will necessitate frequent adjustments
- This presumes a technocratic fishery manager that can accomplish these reallocations at low transaction costs.



# Dynamic/institutional argument 1

- The reality of reallocation is that it is
  - Politically contentious
  - Research intensive
  - Prone to litigation
  - Translation: high transaction costs!
- The result is that allocations (typically) aren't revisited on a regular basis
  - Reallocation creates *de facto* property rights to shares of the allowable catch
- Allocating quasi-durable rights (capital) on the basis of "snapshot" notions of efficiency is problematic
  - Right answer to the wrong question?

# Dynamic/institutional argument 2

- What about forward-looking technocratic allocation?
- Certainly possible, but reallocations can create their own path-dependence that may constrain the future feasible policy choice set
  - Libecap 1989; North 1990; Acemoglu and Robinson 2013
- The future political economy of reallocation is endogenous to today's reallocation decisions →
  - Truly efficient reallocation is a tough dynamic optimization problem with non-convexity and irreversibility

# Dynamic/institutional argument 3

- What about *within-sector* efficiency?
- Many sectors (especially recreation) suffer from high degrees of allocative inefficiency
- The efficient allocation across sectors is a function of within-sector management institutions
- Suppose recreational and commercial fishermen expect both reallocation *and* some form of within-sector “rationalization” (the real world?).
  - Which should the regulator tackle first?

# First things first

- Before within-sector reforms are in place → uncertainty over future within-sector management spills over into uncertainty about the value of allocations in each sector
  - Transaction costs abound!
- As within-sector reforms progress, these uncertainties may be reduced by
  - Consolidation among participants → less heterogeneity
  - Within-sector markets provide valuation data
  - Some reforms (i.e. coops or AMOs) may provide a forum for within-sector cooperation
  - Within-sector reforms *may* provide the necessary infrastructure to facilitate reallocation without management intervention (i.e. inter-sector transfers)

# Summary



- The current usage of economic efficiency arguments in reallocation maps poorly to the institutional reality.
- “The right answer to the wrong question”

Can we do better?

# Proposition 1

- Generalize the equimarginal principle to account for the existing, inefficient rationing mechanisms within each sector a la Holzer and McConnell (2014)
- This will require much more information than is usually currently available on
  1. The *distribution* of marginal values
  2. How within-sector management selects across these values
- This can address the *static* critiques of current methods, but it does nothing to address the dynamic critiques or address within-sector inefficiency.

# Proposition 2

- Take a holistic, long-run view of efficiency by building within-sector management institutions that
  - Foster within-sector efficiency and accountability  
AND
  - Adapt allocations more naturally to biological and economic variability while economizing on transaction costs (including management costs)

# Some broad principles

1. Establish accountability for fishing mortality through enforceable output controls, or input controls if necessary
2. Allocate annual shares of total fishing mortality to each sector according to their historical share of fishing mortality (honor *de facto* rights)
3. Reform *within-sector* management institutions
  - Use incentive-based approaches with transferability or price-based allocation within sectors when possible
  - Do *not* allow transferability (yet)
4. After within-sector reforms have stabilized, approach the question of inter-sector allocations
  - Use institutions created in step 3 to facilitate transferability across sectors where possible
    - Provides an adaptive solution to allocation problems with built-in compensation
  - If market-based transferability isn't possible, then pursue other compensation measures funded by those that benefit
    - Auctions or cross-sector buyouts



# Challenge: the recreational sector

- Divided into the for-hire sector and private anglers
- The for-hire sector can be managed similarly to the commercial sector
  - Amenable to cooperative management or ITQs
- Private anglers are the big challenge
  - Monitoring, enforcement and the lack of catch history precludes ITQ management
  - But there are strong second-best options

# Option 1: Harvest (landings) tags

- I will defer to Dan Holland on the details
- Auction tags to certified private concessions (e.g. sporting goods stores, bait shops, AMOs) and allow them to resale them to anglers
- This lets the private sector match seasonal demand to the limited number of tags AND allows the public to capture some rents
- Problem: discards are unpriced and therefore excessive
  - Poorly targeted instrument for fisheries with high discard mortality
  - But discards can at least be tracked through high quality reporting programs

## Option 2: Input controls on angler days

- Individual anglers' fishing mortality (as opposed to landings) is costly to observe and enforce
  - Similar to non-point source pollution
- Possible solution: target an observable input to mortality using a rights-based system
  - One possible input: an individual “fishing day”
  - Kim, Woodward and Griffin (2008)
  - Abbott and Fenichel (2013)

## Option 2: Input controls on angler days

- Using estimates of fishing mortality per day, the regulator sets a hard cap on total fishing days
- Each fishing day becomes a “day pass” that can be used at anytime in the season
- The angler must “validate” their pass and possess a validated pass for any day they fish
  - Could use smartphone technology
- No harder to enforce than a fishing license
- Allocation could be by auction to private concessions
  - May need rules to prevent excess consolidation

## Option 2: Input controls on angler days

- Theoretically efficient in the allocation of fishing *days* across fishermen
  - But not fishing mortality
- Fishermen may fish more intensively and land more catch than optimal (input stuffing)
  - How big of an issue is this for recreational fishing?
- Managers must forecast mortality per trip
  - But this is an issue for harvest tags and bag limits also!
- Could be paired with mandatory landing/discard reporting
  - Unlike harvest tags, this is fully incentive-compatible for both landed catch and discards

# Challenges for transferability

- Both harvest tags and day passes are poorly suited to inter-sector transfers with the commercial sector
- Recreational rights are seasonal – no basis for an asset market
- Within-season “lease” markets are hampered by
  - Differences of unit of account between recreation and commercial sectors
  - High transaction costs of coordinating with large numbers of recreational “smallholders”

# One solution:

## Angling management organizations

- Proposed by Sutinen and Johnston (2003)
- AMOs are for-profit NGOs with shareholders.
  - Publically traded
  - Defined according to states, regions or ports
  - Shares of the AMOS are NOT the same as shares of TAC
- Each AMO is allocated its share of TAC and granted the authority to manage it (including the use of harvest tags or day passes) as long as they stay within the TAC
  - Enforced by penalties/paybacks in subsequent years
- Shareholders have an incentive to manage quota to maximize its value as a capital asset
  - Rules to ensure competition and equality of opportunity to fishing may be needed

# AMOs, continued

- The share of TAC granted to AMOs provides a basis for long and short-run transfers between other AMOs and the commercial sector
- As publically traded, for-profit entities, AMOs have an incentive to maximize the value of their quota, either in use or by selling it
  - Quota is an input into the provision of recreational services to an AMO's customers
- AMOs provide a bridge between individual anglers and the commercial sector
- A mechanism for *dynamic, adaptive, efficient, and compensated* reallocation of fishing mortality across sectors
  - Regulators set the *initial* allocation, but not the final allocation!



# Conclusion

- The assumptions behind most allocation analyses are too far from reality to be immediately useful to policy
  - A static answer to a fundamentally dynamic question
  - Assume efficient allocation within each sector
- The cause of efficiency would be better served by modifying allocation analyses to account for inefficient within-sector management
  - This is a research program, not a patch to current analyses

# Conclusion

- In many cases efficiency, accountability and (potentially) equity would be best served by
  1. Reforming within-sector management institutions (especially the recreational sector) toward efficiency and accountability
  2. Building institutions in each sector to facilitate accountable, adaptive, decentralized, and compensated reallocation across sectors!
- There are huge research needs in this area
  - But are we distracted by the immediate demands of a “red herring”?

